

WHAT IS CLAIMED IS:

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1. A video moving object detecting method comprising the steps of:

5        a. determining whether a video signal in a predetermined unit area represents a background area or a non-background area from a reconstructed video signal acquired by decoding encoded data obtained by compression-encoding a motion video signal; and

10        b. determining an area of a moving object from a result of the determination on whether said video signal represents said background area or said non-background area.

15        2. The method according to claim 1, wherein the step a includes determining whether an interest macro block is a background macro block or a non-background macro block every frame, and the step b includes determining a moving object on the basis of a determination result as a background in the step a.

20        3. The method according to claim 2, wherein the step a includes determining a background or a non-background every macro block in the frame on the basis of decoded mode information, a first cross correlation value between a local decoded picture signal and a reference picture signal of a frame preceding by one  
25        frame, and a second cross correlation value between the local decoded picture signal and a background picture signal preceding by one frame.

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4. The method according to claim 3, wherein the step a includes determining the interest macro block as a background macro block when the first cross correlation value is larger than a first threshold

5           5. The method according to claim 3, wherein the step a includes determining the interest macro block as a non-background macro block when the second cross correlation value is larger than a second threshold, and as a background macro block when the second cross correlation value is not more than the second threshold.

10           6. The method according to claim 2, wherein the step b includes removing a non-background macro-block, N macro-blocks around which are all still, as a noise, and determining a smallest rectangle enclosing an area where non-background macro blocks are present adjacent to one another, on the basis of a background/non-background determination result after noise has been removed.

15           7. A video moving object detecting method comprising the steps of:

20           a determining whether a video signal in a given unit area represents a background area or a non-background area from a reconstructed video signal acquired by decoding encoded data obtained by compression-encoding a motion video signal;

25           b determining an area of a moving object from a

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result of the determination on whether said video signal represents said background area or said non-background area; and

5        c displaying information indicating said area of said moving object on a display screen for said reconstructed video signal.

8. The method according to claim 7, wherein the step c includes combining information indicating the area of the moving object with the reconstructed video signal to obtain a combined video image, and displaying the combined video image.

9. A video moving object detecting apparatus comprising:

15        a background/non-background determining section which determines whether a video signal corresponding to a unit area represents a background area or a non-background area, the video signal being part of a reconstructed video signal acquired by a video decoder section which decodes encoded data obtained by compression-encoding a motion video signal; and

20        a moving object determining section which determines an area of a moving object from a result of the determination done by said background/non-background determining section for each unit area.

25        10. The apparatus according to claim 9, which further comprises a first cross correlation calculator which computes a cross correlation value between a

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5 reconstructed video, and a second cross correlation  
calculator which computes a second cross correlation  
value between the current frame of the reconstructed  
video signal and the background video signal stored in  
the storage section every unit area, and the

11. The apparatus according to claim 9, wherein the moving object determining section includes a section which determines, as a moving object, an ambit including a plurality of unit areas determined as the non-background area and adjacent to one another.

12. The apparatus according to claim 9, wherein the background/non-background determining section includes a section which determines whether an interest macro block corresponding to the unit area is a background macro block or a non-background macro block every frame, and the moving object determining section

includes a section which determines the moving object on the basis of a determination result as the background area.

13. The apparatus according to claim 12, wherein  
5 the background/non-background determining section includes a first cross correlation calculator which computes a first cross correlation value between a local decoded picture signal and a reference picture signal of a frame preceding by one frame, a second  
10 cross correlation calculator which computes a second cross correlation value between the local decoded picture signal and a background picture signal preceding by one frame, and a determining section which determines a background or a non-background every macro  
15 block in the frame on the basis of decoded mode information, the first cross correlation value, and the second cross correlation value.

14. The apparatus according to claim 13, wherein  
20 the determining section includes a section which determines the interest macro block as a background macro block when the first cross correlation value is larger than a first threshold

15. The method according to claim 13, wherein the  
25 determining section includes a section which determines the interest macro block as a non-background macro block when the second cross correlation value is larger than a second threshold, and as a background macro

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block when the second cross correlation value is not more than the second threshold.

16. The apparatus according to claim 12, wherein the moving object determining section includes a  
5 section which removes a non-background macro-block, N macro-blocks around which are all still, as a noise, and a section which determines a smallest rectangle enclosing an area where non-background macro blocks are present adjacent to one another, on the basis of a  
10 background/non-background determination result after noise has been removed.

17. A video moving object detecting apparatus comprising:

a background/non-background determining section  
15 which determines whether a video signal corresponding to a unit area represents a background area or a non-background area, the video signal being part of a reconstructed video signal acquired by a video decoder section which decodes encoded data obtained by  
20 compression-encoding a motion video signal; and

a moving object determining section which determines an area of a moving object from a result of the determination done by said background/non-background determining section for each unit area; and  
25 a display section which displays information indicating the area of the moving object, determined by said moving object determining section, on a display

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18. The apparatus according to claim 17, which further comprises a first cross correlation calculator which computes a cross correlation value between a

5 current frame of the reconstructed video signal and a  
video signal preceding by one frame every unit area, a  
storage section which stores a background video signal  
corresponding to a background component of the  
reconstructed video, and a second cross correlation  
10 calculator which computes a second cross correlation  
value between the current frame of the reconstructed  
video signal and the background video signal stored in  
the storage section every unit area, and the  
background/non-background determining section includes  
15 a section which determines whether the video signal in  
the unit area is a background area or a non-background  
area on the basis of encoding mode information obtained  
from the video decoder section, the first cross  
correlation value and the second cross correlation  
20 value.

19. The apparatus according to claim 18, further comprising an update section for, when the background/non-background determining section determines that the video signal in said predetermined unit area of the reconstructed video signal represents a background area, updating the background video signal stored in said storage section with said video signal

in said unit area which has been determined as representing said background area.

5        20. The apparatus according to claim 17, wherein said moving object determining section determines, as said area of said moving object, an area where a plurality of unit areas which have been determined as representing a non-background area by said background/non-background determining section are located adjacent to one another.

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